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EXAMINER	
WONG, EDNA	
ART UNIT	**PAPER NUMBER**
1753	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/772,473	BOKISA ET AL.	
	Examiner	Art Unit	
	Edna Wong	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 September 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 15-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 15-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *June 10, 2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

This is in response to the Amendment dated September 26, 2005. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Arguments

Drawings

The drawings have been objected to.

The objection to the drawings has been withdrawn in view of Applicants' remarks.

Specification

The disclosure has been objected to because of minor informalities.

The objection to the disclosure has been withdrawn in view of Applicants' amendment.

Claim Objections

Claims **2-6, 10-12, 15 and 17-18** have been objected to because of minor informalities.

The objection of claims 2-6, 10-12, 15 and 17-18 has been withdrawn in view of Applicants' amendment.

Claim Rejections - 35 USC § 112

Claims **2-3, 11-15, 17-18 and 20** have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The rejection of claims 2-3, 11-15, 17-18 and 20 under 35 U.S.C. 112, second paragraph, has been withdrawn in view of Applicants' amendment.

Double Patenting

Claims **1-22** have been provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-23 of copending Application No. 10/772,595.

The provisional rejection under the judicially created doctrine of obviousness-type double patenting has been withdrawn in view of Applicants' Terminal Disclaimer.

Claim Rejections - 35 USC § 102

Claims **1-3** have been rejected under 35 U.S.C. 102(b) as being anticipated by **JP 10-245693** ('693).

The rejection of claims 1-3 under 35 U.S.C. 102(b) as being anticipated by **JP** 10-245693 ('693) has been withdrawn in view of Applicants' amendment.

Claim Rejections - 35 USC § 103

I. Claims **4-8** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 10-245693** ('693) as applied to claims 1-3 above, and further in view of **Hui** (US Patent No. 6,372,118 B2) and **Caballero** (US Patent No. 5,213,907).

The rejection of claims 4-8 under 35 U.S.C. 103(a) as being unpatentable over JP 10-245693 ('693) as applied to claims 1-3 above, and further in view of Hui and Caballero has been withdrawn in view of Applicants' amendment.

II. Claims **9-13 and 15** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 10-245693** ('693).

The rejection of claims 9-13 and 15 under 35 U.S.C. 103(a) as being unpatentable over JP 10-245693 ('693) has been withdrawn in view of Applicants' amendment.

III. Claim **14** has been rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 10-245693** ('693) as applied to claims 9-13 and 15 above, and further in view of **Hui** (US Patent No. 6,372,118 B2).

The rejection of claim 14 under 35 U.S.C. 103(a) as being unpatentable over JP 10-245693 ('693) as applied to claims 9-13 and 15 above, and further in view of Hui has been withdrawn in view of Applicants' amendment.

IV. Claims **16-22** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 10-245693** ('693).

The rejection of claims 16-22 under 35 U.S.C. 103(a) as being unpatentable over JP 10-245693 ('693) has been withdrawn in view of Applicants' amendment.

Response to Amendment

Terminal Disclaimer

The terminal disclaimer filed on September 26, 2005 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted on Application No. 10/772,595 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Objections

Claim **15** is objected to because of the following informalities:

Claim 15

line 2, the word "slected" should be amended to the word -- selected --.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

Claim **6** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6

line 19, it appears that the "at least one brightener" is the same as the at least one acetylenic brightener recited in claim 1, lines 4-6. However, it is unclear if it is. If it is not, then what is the difference between the at least one brightener and the at least one acetylenic brightener.

Claim Rejections - 35 USC § 103

I. Claims **1-8 and 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 63-239848** ('848) in combination with **Passal** (US Patent No. 3,697,391).

JP '848 teaches a method of electroplating an alloy comprising nickel and cobalt, and boron comprising:

(a) providing an electroplating bath comprising:

(i) an anode;

(ii) a cathode;

(iii) water (= aqueous);

(iv) ionic nickel (= Ni^{2+});

(v) ionic cobalt (= Co^{2+});

(vi) an amine-borane compound (= trimethylamine borane, Me_3NBH_3); and

(b) applying a current (= 1 A/dm^2) [page 4, Example 1] to the electroplating bath

whereby the alloy comprising nickel, cobalt, and boron forms on the cathode (abstract).

The electroplating bath comprises about 40 g/l or more and about 100 g/l or less of ionic nickel (1-100 g/L); about 1 g/l or more and about 30 g/l or less of ionic cobalt (= 1-100 g/L); about 0.2 g/l or more and about 10 g/l or less of the amine-borane compound (= 0.5-10 g/L) [abstract].

The electroplating bath has a temperature from about 10°C to about 90°C (= 30°C) [page 4, Example 1]; and a current density of about 1 ASF or more and about 500 ASF or less is applied to the electroplating bath (= 1 A/dm^2) [abstract].

The electroplating bath is provided by combining water, at least one nickel compound of nickel sulfate, at least one cobalt compound of cobalt sulfate, at least one boron compound of trimethylamine borane (abstract; and page 4, Example 1).

The nickel cobalt boron alloy comprises about 2% by weight or less of components other than nickel, cobalt and boron (= 0% by weight) [abstract].

The method of JP '848 differs from the instant invention because JP '848 does not disclose the following:

a. Wherein the electroplating bath comprises at least one acetylenic brightener, as recited in claim 1.

b. Wherein the acetylenic brightener is selected from the group consisting of acetylenic alcohols, acetylenic amines, acetylenic esters, acetylenic sulfonic acids and sulfonates, alkoxylated acetylenic alcohols, and acetylenic carboxylic acids, as recited

in claim 3.

c. Wherein the acetylenic brightener is selected from the group consisting of ethoxylated butynediol; 2-butyne-1,4-diol; propargyl alcohol; ethoxylated propargyl alcohol; hydroxyethyl propynyl ether; beta-hydroxypropyl, propynyl ether; gamma-propynyloxy, bis-beta-hydroxyethyl ether 2-butyn-1,4-diol; bis-beta-hydroxypropyl ether 2-butyn-l1,4-diol; 1,4-di-(beta-hydroxyethoxy)-2-butyne; 1,4-di-(beta-hydroxy-gamma-chloropropoxy)-2-butyne; 1 ,4-di-(beta-gamma-epoxypropoxy)-2-butyne; 1,4-di-(beta-hydroxy-gamma-butenoxy)-2-butyne; 1,4-di-(2'-hydroxy-4'-oxa-6'-heptenoxy)-2-butyne; 2,4,6-trimethyl N-propargyl pyridinium bromide; 2-methyl-3-butyn-2-ol; l-(beta-hydroxyethoxy)-2-propyne; and 1-(beta-hydroxypropoxy)-2-propyne, as recited in claim 23.

Passal adds effective amounts of at least one member selected from the group of cooperating additives consisting of:

(a) a primary brightener;

(b) a secondary brightener;

(c) a second auxiliary brightener, and

(d) an anti-pitting agent (col. 2, lines 41-47)

to ***typical*** nickel-containing, cobalt-containing and nickel-cobalt-containing bath compositions (col. 6, lines 30-38).

Examples of a primary brightener are 2,4,6-trimethyl N-propargyl pyridinium bromide, 2-butyne-1,4-diolpropargyl alcohol and 2-methyl-3-butyn-2-ol (col. 3, lines 3-

31).

Examples of a secondary brightener are aromatic sulfonates, sulfoamides, sulfonimides and sulfinates (col. 3, lines 32-41).

Such plating additives compounds, which may be used singly or in suitable combinations, have one of more of the following functions:

(1) To obtain semi-lustrous deposits or to produce substantial grain-refinement over the usual dull, matter, grainy, non-reflective deposits from additive free baths.

(2) To act as ductilizing agents when used in combination with other additives such as primary brighteners.

(3) To control internal stress of deposits, generally by making the stress desirably compressive.

(4) To introduce controlled sulfur contents into the electrodeposits to desirably affect chemical reactivity, potential differences in composite coating systems, etc. thereby decreasing corrosion, better protecting the basis metal from corrosion, etc. (col. 3, lines 42-56).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by JP '848 with wherein the electroplating bath comprises at least one acetylenic brightener because adding effective amounts of these brighteners to typical nickel-containing, cobalt-containing and nickel-cobalt-containing bath compositions would have provided the functions (1) to (4)

as described above (col. 3, line 3 to col. 4, line 22).

d. Wherein the electroplating bath further comprises at least one sulfur containing brightener selected from the group consisting of sulfinic acids, sulfonic acids, aromatic sulfonates, aromatic sulfinates, sulfonamides, sulfonimides, sulfimides, and sulfo-betaines, as recited in claim 2.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by JP '848 with wherein the electroplating bath further comprises at least one sulfur containing brightener selected from the group consisting of sulfinic acids, sulfonic acids, aromatic sulfonates, aromatic sulfinates, sulfonamides, sulfonimides, sulfimides, and sulfo-betaines because semi-lustrous deposits would have been obtained or substantial grain-refinement would have been produced over the usual dull, matter, grainy, non-reflective deposits from additive-free baths as taught by Passal (col. 3, lines 42-56).

e. Wherein the electroplating bath comprises from about 0.001% to about 5% by weight of at least one acetylenic brightener, as recited in claim 4.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by JP '848 with wherein the electroplating bath comprises from about 0.001% to about 5% by weight of at least one acetylenic brightener because Passal teaches that about 0.005-0.2 g/l (= 0.0005% to

0.02% by weight) of the primary brightener would have been effective amounts (col. 6, lines 30-38).

f. Wherein the electroplating bath has a pH from about 2 to about 6, as recited in claim 5.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by JP '848 with wherein the electroplating bath has a pH from about 2 to about 6 because Passal teaches maintaining pH values of 2.5 to 5.0 during plating (col. 7, line 74 to col. 8, line 3).

g. Wherein the anode comprises at least one of nickel, cobalt, boron, iridium oxide, platinum, titanium, graphite, carbon and platinum-titanium, as recited in claim 7.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by JP '848 with wherein the anode comprises at least one of nickel, cobalt, boron, iridium oxide, platinum, titanium, graphite, carbon and platinum-titanium because Passal teaches using an anode comprised of nickel for electroplating a nickel-cobalt alloy (cols. 11-12, Example 8).

II. Claims **9-12 and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 63-239848** ('848) in combination with **Passal** (US Patent No. 3,697,391).

JP '848 and Passal are as applied for reasons as discussed above and incorporated herein.

The method of JP '848 differs from the instant invention because JP '848 does not disclose wherein a current density of about 10 ASF or more and about 200 ASF or less is applied to the electroplating bath, as recited in claim 10.

JP '848 teaches 1 A/dm^2 (page 4, Example 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by JP '848 with wherein a current density of about 10 ASF or more and about 200 ASF or less is applied to the electroplating bath because changes in the current density is not deemed a patentable modification; however, such changes may impart patentability to a process if the ranges claimed produce new and unexpected results which are different in kind and not merely in degree from results of the prior art, such ranges are termed "critical" ranges and Applicant has the burden of proving such criticality; even though Applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within capabilities of one skilled in the art; more particularly, where general conditions of the claim are disclosed in the prior art, it is not inventive to discover optimum or workable ranges by routine experimentation. *In re Aller*, 220 F2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) and MPEP § 2144.05.

Furthermore, the current density is a result-effective variable and one skilled in the art has the skill to calculate the current density that would determine the success of

the desired reaction to occur, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(II)(B).

III. Claim **13** is rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 63-239848** ('848) in combination with **Passal** (US Patent No. 3,697,391) as applied to claims 9-12 and 24 above, and further in view of **SU 1,544,847** ('847).

JP '848 and Passal are as applied for reasons as discussed above and incorporated herein.

The method of JP '848 and Passal differs from the instant invention because they do not disclose wherein the sulfur-containing brightener is a sulfo-betaine brightener, as recited in claim 13.

SU '847 teaches that an additive containing a N-containing heterocyclic compound increases the hardness of a nickel or nickel-cobalt alloy coating (abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by JP '848 and Passal with wherein the sulfur-containing brightener is a sulfo-betaine brightener because an additive containing a N-containing heterocyclic compound would have increased the hardness of a nickel or nickel-cobalt alloy coating as taught by SU '847 (abstract).

The reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or

result discovered by the Applicants. *In re Linter* 458 F.2d 1013, 173 USPQ 560 (CCPA 1972); *In re Dillon* 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1990), *cert. denied*, 500 US 904 (1991); and MPEP § 2144.

IV. Claim **15** is rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 63-239848** ('848) in combination with **Passal** (US Patent No. 3,697,391) as applied to claims 9-12 and 24 above, and further in view of **JP 10-245693** ('693).

JP '848 and Passal are as applied for reasons as discussed above and incorporated herein.

The method of JP '848 and Passal differs from the instant invention because they do not disclose wherein the electroplating bath further comprises at least one organic brightener selected from the group consisting of ethylenic alcohols, coumarins, aldehydes, compounds containing a C≡N linkage and heterocyclics, as recited in claim 15.

JP '693 teaches that incorporating a heterocyclic quaternary compound into a nickel cobalt boron electroplating bath as a brightener prevents corrosion of electronic parts and prevents precipitation of metals on an insulating part when the current density is increased (abstract; page 2, [0009]; and Claim 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by JP '848 and Passal with wherein the electroplating bath further comprises at least one organic brightener

selected from the group consisting of ethylenic alcohols, coumarins, aldehydes, compounds containing a C≡N linkage and heterocyclics because this would have prevented corrosion of electronic parts and prevented precipitation of metals on an insulating part when the current density is increased as taught by JP '693 (abstract; page 2, [0009]; and Claim 1).

V. Claims **16-22 and 25** are rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 63-239848** ('848) in combination with **Passal** (US Patent No. 3,697,391).

JP '848 and Passal are as applied for reasons as discussed above and incorporated herein.

JP '848 also teaches wherein the electroplating bath further comprises at least one conductivity salt (= boric acid, H_3BO_3) [page 4, Example 1].

The conductivity salt is selected from the group consisting of boric acid, sodium sulfate, sodium chloride, potassium sulfate and potassium chloride (= boric acid, H_3BO_3) [page 4, Example 1].

The method of JP '848 differs from the instant invention because JP '848 does not disclose the following:

a. Wherein the electroplating bath has a temperature from about 40°C to about 70°C and a current density of about 10 ASF or more and about 200 ASF or less is applied to the electroplating bath, as recited in claim 19.

JP '848 teaches a temperature of 30°C and a current density of 1 A/dm^2 (page 4, Example 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by JP '848 with wherein the electroplating bath has a temperature from about 40°C to about 70°C and a current density of about 10 ASF or more and about 200 ASF or less is applied to the electroplating bath because changes in the temperature and current density are not deemed patentable modifications; however, such changes may impart patentability to a process if the ranges claimed produce new and unexpected results which are different in kind and not merely in degree from results of the prior art, such ranges are termed "critical" ranges and Applicant has the burden of proving such criticality; even though Applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within capabilities of one skilled in the art; more particularly, where general conditions of the claim are disclosed in the prior art, it is not inventive to discover optimum or workable ranges by routine experimentation. *In re Aller*, 220 F2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) and MPEP § 2144.05.

Furthermore, the temperature and current density are result-effective variables and one skilled in the art has the skill to calculate the temperature and current density that would determine the success of the desired reaction to occur, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(II)(B).

b. Wherein the electroplating bath comprises from about 0.01% to about 1% by weight of the at least two brighteners, as recited in claim 20.

Passal teaches that best results are obtained when primary brighteners are used with either a secondary brightener, a secondary auxiliary brightener, or both in order to provide optimum luster, rate of brightening, leveling, bright plate current density range, low current density coverage, etc. (col. 3, lines 24-31).

Passal teaches about 0.0005-0.2 g/l of the primary brightener, about 1.0-30 g/l of the secondary brightener, and about 0.5-10 g/l of the secondary auxiliary brightener (col. 6, lines 30-38).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by JP '848 with wherein the electroplating bath comprises from about 0.01% to about 1% by weight of the at least two brighteners because best results would have been obtained when primary brighteners are used with either a secondary brightener, a secondary auxiliary brightener, or both in order to provide optimum luster, rate of brightening, leveling, bright plate current density range, low current density coverage, etc. as taught by Passal (col. 3, lines 24-31).

As to about 0.01% to about 1% by weight of the at least two brighteners, changes in the concentration is not deemed a patentable modification; however, such changes may impart patentability to a process if the ranges claimed produce new and unexpected results which are different in kind and not merely in degree from results of

the prior art, such ranges are termed "critical" ranges and Applicant has the burden of proving such criticality; even though Applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within capabilities of one skilled in the art; more particularly, where general conditions of the claim are disclosed in the prior art, it is not inventive to discover optimum or workable ranges by routine experimentation. *In re Aller*, 220 F2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) and MPEP § 2144.05.

Furthermore, the concentration of the at least two brighteners is a result-effective variable and one skilled in the art has the skill to calculate the concentration that would determine the success of the desired reaction to occur, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(II)(B).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edna Wong
Primary Examiner
Art Unit 1753

EW
October 3, 2005